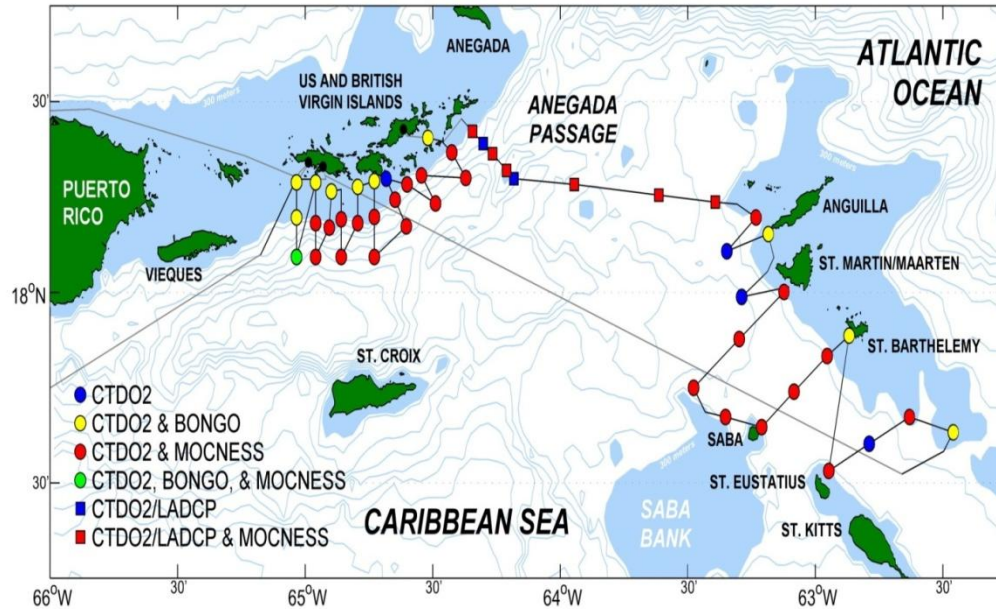


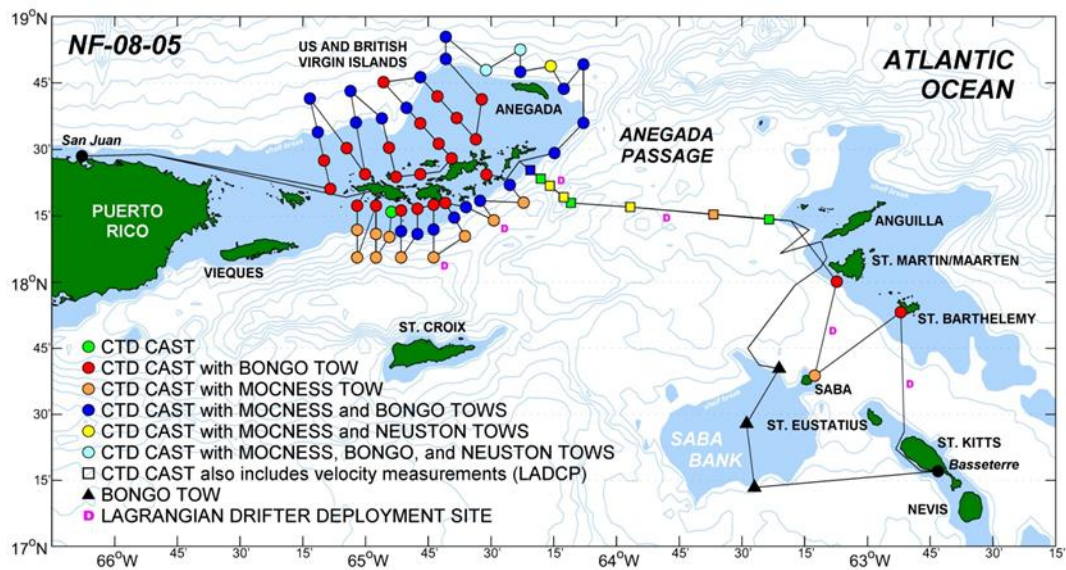
- I. **USVI Larval Distribution and Supply, Fisheries Oceanography Survey**
- II. **How is it funded, who administers it?** NOAA, NMFS, SEFSC
- III. **Why was the survey originally designed?** The research conducted was aimed at answering the following three questions: 1) How do the abundance and composition of ichthyoplankton around Grammanik Bank and other similar banks change with space and time? 2) How much of this variation in abundance and composition can be explained by the oceanographic setting? 3) How do the oceanography and ichthyoplankton assemblages interface with the boundary areas of seasonally or permanently closed MPAs?
- IV. **What are/were the intended outcomes/objectives?**
- V. **Describe the temporal and spatial coverage of the survey**
 - a. **Show the geographic coverage of the survey** (see maps below)
 - b. **How often is the survey conducted?** Basically annually
 - c. **Is it seasonal?** No, the cruises were at different dates due to ship scheduling issues.
- VI. **Describe the underlying experimental design**
 - a. Stations directed at the Virgin Islands were designed along transects that allowed for sampling near shore, along the shelf edge, and offshore. Depending on the location along the sampling transects, various biological and/or physical oceanographic sampling methods were used. (see maps below)
- VII. **Describe the methodology and gear:** Settlement-stage larvae were sampled in conjunction with an oceanographic (biological, physical and chemical) survey of the bank system, coral reef environs, and inshore waters of the USVI, with emphasis on present and possible future MPAs. Surveys included bongo and one meter multiple open and closing net environmental sampling system (MOCNESS) trawl tows, as well as CTD02/LADCP casts profiling, temperature, salinity, dissolved oxygen, light transmission, chlorophyll, and water velocity. Continuous surface measurements of temperature, salinity, light transmission, chlorophyll, and water velocity were collected via the ship's flow-through system and hull-mounted ADCP. Independent temperature profiles were obtained using XBT's. Finally, satellite-tracked, Lagrangian surface drifters were deployed to assess regional ocean circulation.
- VIII. **Describe the outputs of the survey**
 - a. We have a total of 1,410 sample stations, 90% of which have been identified for larvae. There were >25,000 larvae in each cruise.
- IX. **Self-Evaluation of pros and cons of Survey**
 - a. **What suite of species does this survey target?** The larvae of several species of reef, reef-associated, and pelagic fishes. The target species summarized here are the parrotfishes.
 - b. **What are the gear/method biases (catchability, size selectivity)?**
 - c. **What are the temporal/spatial limitations?** Needs to be year round to sample those species with year-round spawning.
 - d. **Is this survey expected to continue into the future? ?**
 - e. **It is relatively expensive/inexpensive, logistically difficult/easy?** Expensive

- X. **Self-Evaluation of utility of survey for generating information for stock assessment**
 - a. **Spatial/Temporal coverage:** Needs to be year round to sample those species with year-round spawning.
 - b. **Data generated:** larval data that could possibly be linked with estimates of spawning stock biomass.
- XI. **Provide any other information that may be relevant to this discussion**
- XII. **Provide most relevant documentation**
 - a. Cruise reports are available

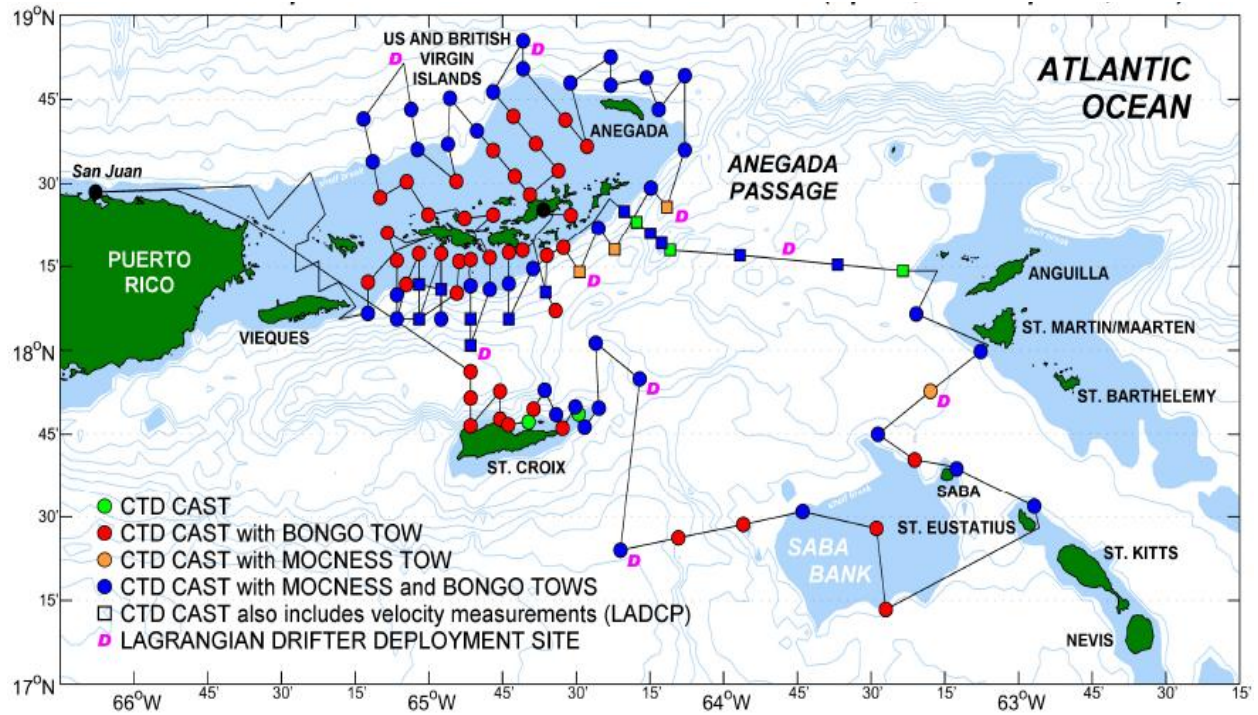
Cruise #1- NF 0705 March 27, 2007 to April 10, 2007



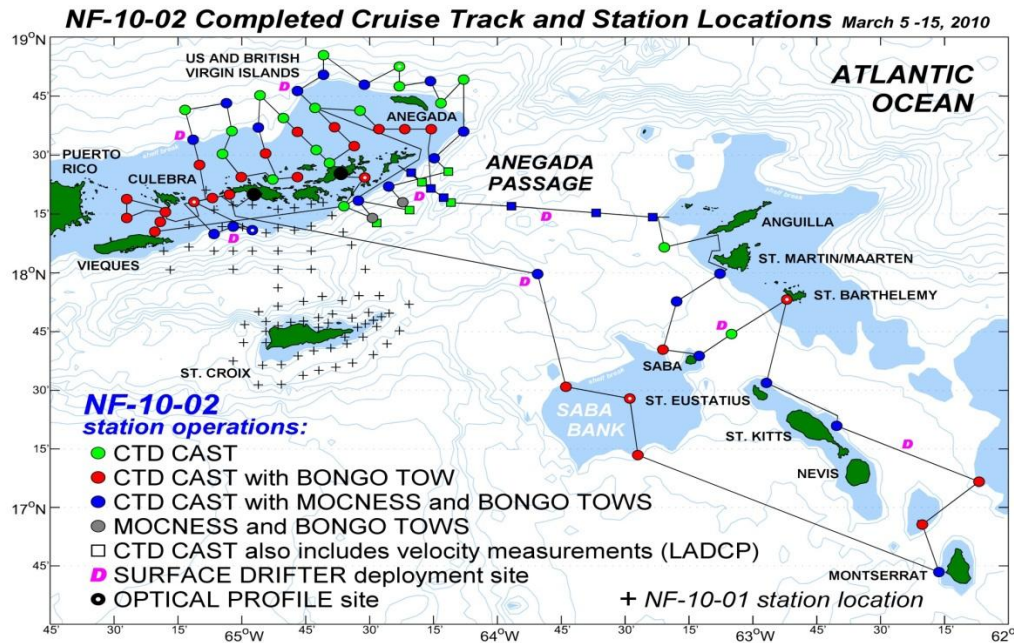
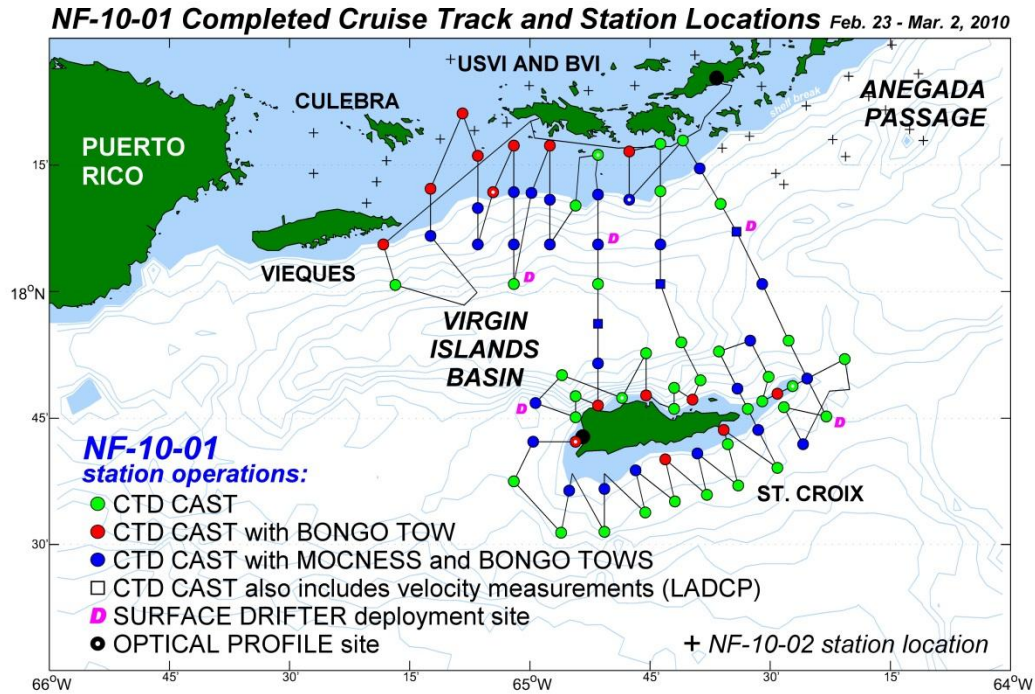
Cruise #2 NF-08-05, March 11-24, 2008. *Neuston tows/ north of USVI added



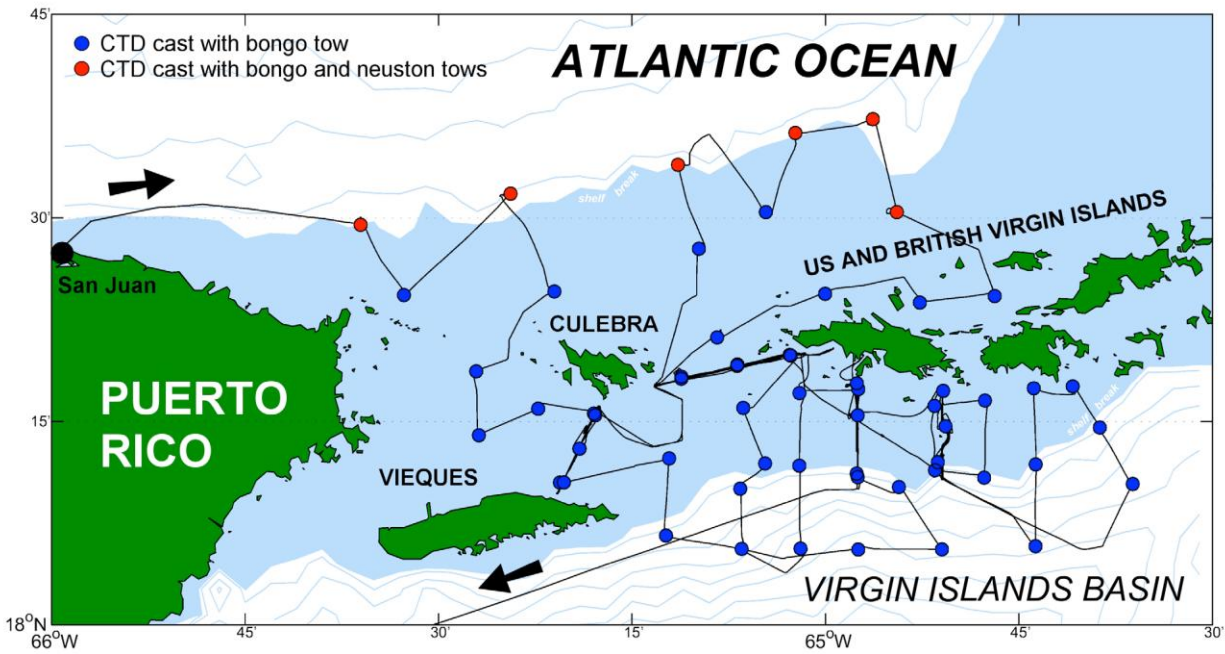
Cruise #3- NF-09-03, April 7-20, 2009. *North of St. Croix added.



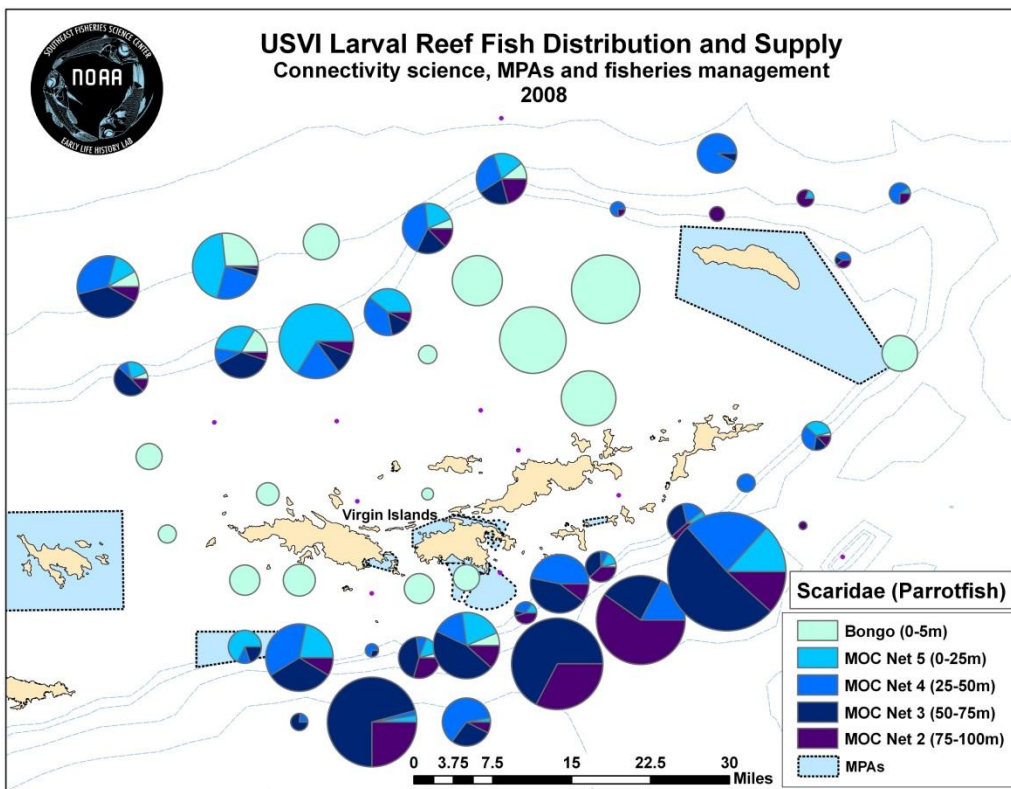
Cruise #4 NF-10-01/-02, NF- 01 February 23 – March 2, 2010, NF-02 March 5-15, 2010 . *Sampling around entire St. Croix added.



Cruise #5 NF- 1102, April 19- May 7, 2011. *Scaled back sampling for gear and station location.



Parrotfish distribution in 2008:



Parrotfish identification summary, according to year, gear, and genus:

	MOC				Bongo				
	<i>Cryptotomus</i>	<i>Sparisoma</i>	<i>Scarus</i>	<i>UNID/dam</i>	<i>Cryptotomus</i>	<i>Sparisoma</i>	<i>Scarus</i>	<i>UNID/dam</i>	
2007	251	1996	262	24	9	75	21	2	2640
2008	355	1412	182	12	46	165	64	29	2265
2009	39	661	235	0	18	1079	179	10	2221
Totals	645	4069	679	36	73	1319	264	41	7126